1870MNRAS..30...71B

			G.M.T.		
			h	m	s
3 Dec. 1869	3	Oc. R. first	7	54	10
		mid	7	56	15
		last	7	59	33
		Ec. D.	8	59	58·5
		R.	10	37	31·9
21	3	Tr. E. last cont.	4	58	32
23	2	Shad. full on	5	18	25
	1	Tr. I. first	6	4	7
		last	6	9	14
		E. first	8	9	24
		last	8	16	44
24	1	Ec. R.	6	28	5·5
31	1	Oc. D. first	5	3	47
		last	5	6	12
8 Jan.	2	Ec. R.	7	27	25·1
9	1	Ec. R.	4	49	38·2

Occultations of Stars by the Moon.

			G.M.T.		
			h	m	s
10 Nov. 1869	30 Capricorni	Disappearance	7	0	30·6
17 ,,	μ Ceti	,,	9	48	19·7
		Reappearance	11	7	28·4

Waterloo, near Liverpool,
12th Jan. 1870.

On a Bright-Cross Micrometer for measuring the position of lines in faint Spectra. By John Browning, Esq.

Attempting recently to map out the spectrum of *Jupiter* I experienced great difficulty in determining the position of the lines. The spectrum was not sufficiently luminous to show the wire of the micrometer when it was opposite the red end of the spectrum, and it was in that portion that I wished to measure the position of the lines discovered by Mr. Huggins, which are probably due to the absorption of light in the planet's atmosphere.

As soon as I tried to light up the wire of the micrometer the spectrum became almost invisible, the lines being altogether lost.*

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* Is the apparent brightness of *Jupiter* due entirely to the size of his disc? The spectrum of a star of the third magnitude is as brilliant even when widened by a cylindrical lens to the same breadth as *Jupiter's* spectrum.

Since writing the above, Mr. Proctor has kindly furnished me with an answer

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To obviate this difficulty I contrived a bright-line micrometer, which is in action, and which I shall now have the honour to describe.

Fig. 1 represents the upper part of the star spectroscope. Attached to the side is a small tube, A A. At the outer part of this tube is a glass plate, blackened with two fine clear white lines across the centre, at an angle of 45°, like a letter X. These lines can, perhaps, be most neatly produced by photography.

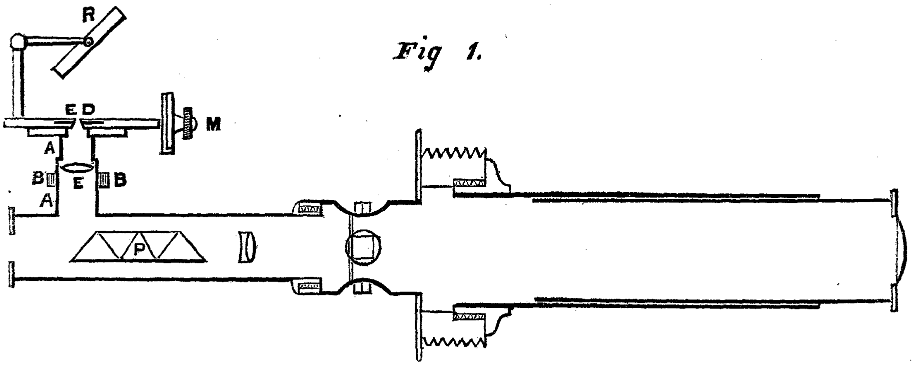


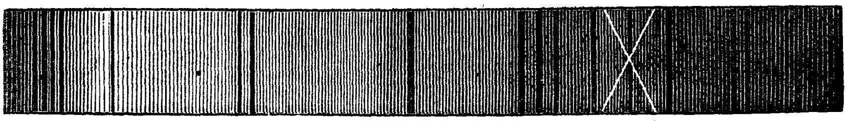
Fig 1.

The lens *c* which is focussed by turning the milled ring M, produces an image of the bright line in the field of view by reflection at the prism from the surface nearest the eye. On turning the micrometer screw, M, the slide which holds the glass-plate is made to travel in grooves, and the fine lines are made to traverse the whole length of the spectrum.

By means of the mirror, R, sunlight can be reflected into the micrometer. If desirable the light may be modified by placing a piece of silver paper spread with paraffin in front of the glass-plate.

Fig. 2 represents a spectrum, and shows the bright cross of the micrometer in measuring a fine line in the most refrangible portion, where a wire or web would be imperceptible.

Fig. 2.



to this question, I had overlooked the obvious fact that while we have a star in the spectroscope, we obtain the whole light of the disc of the star, between the jaws of the slit, while, in the case of *Jupiter*, we have only the light of that portion of the disc of the planet to deal with which falls within the jaws of the slit. I would, therefore, propose to use the cylindrical lens, such as are used with the star spectroscope, in broadening the stellar spectra, but with the convexity of the lens turned in the other direction, that is to say, in the direction of the line of the slit instead of at right angles to it.

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